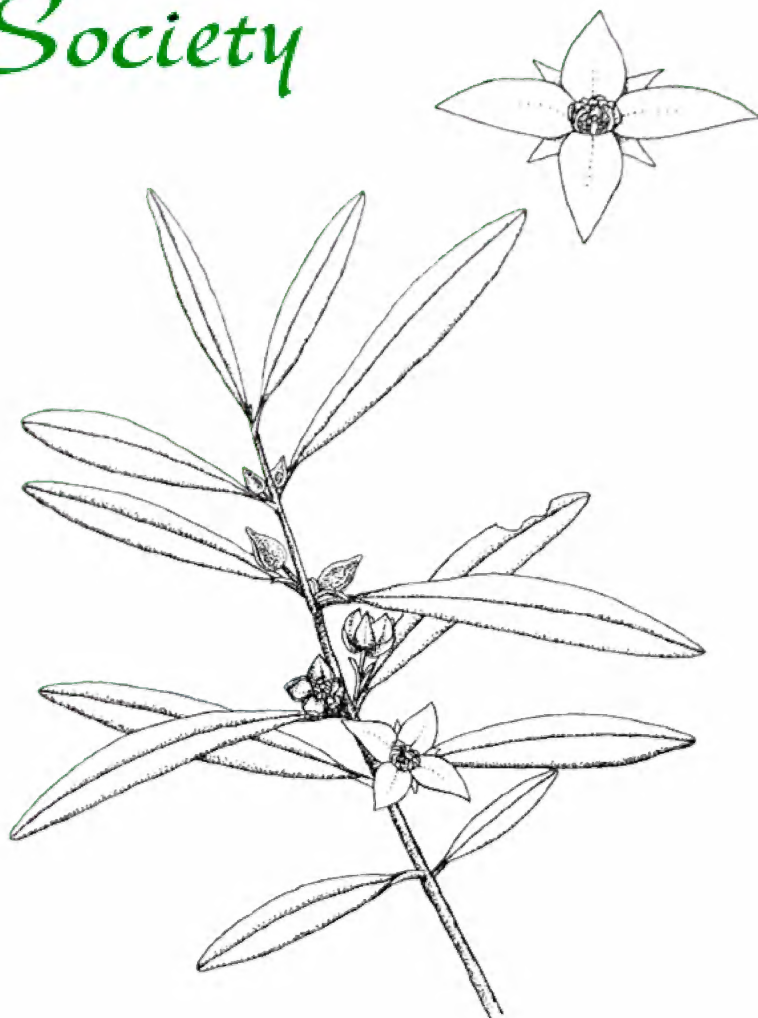


ASBS

*Australian
Systematic
Botany
Society*



Newsletter

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Cover Image: *Boronia jensziae* (Rutaceae), reproduced with the permission of Peter Neish (the artist) and ABRIS.

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Hardcopy: 29 July 2009; ASBS Website: 22 July 2009

From the President

This will be my last 'From the President' as, as already discussed, my 6th and final term on Council is coming to an end. It has been a rewarding experience and I would like to take this opportunity to say thankyou to everyone on Council and the membership for making it so.

The last few months have been fairly quiet for the society. One important event that did occur was the dissolution of the Palynological and Palaeobotanic Association of Australia (PPAA). The dissolution has been happening over a number of years (c. 10) and has involved a number of ASBS Councils. What this has meant for ASBS is that we have received the remaining PPAA funds (a bit like in a will) that will be invested and used to support botanical systematics in Australia. The full details of the transfer etc will be in the Treasures report for 2008/9. It is sad to see a society like this dissolve. Many past members of the PPAA are members of ASBS and the use of palynological and palaeobotanic data in systematics research is becoming increasingly important. The opportunity exists for specialised meetings within ASBS conferences and articles in the *Newsletter* to promote palynological and palaeobotanic research.

The next time you receive a subscription notice

in the *Newsletter* (December) there will be a box to tick to state you would rather download your *Newsletter* from the ASBS website. That is, stop receiving hardcopies in the post. This will reduce the annual running cost [printing & postage] of the society, thus liberating money that can be better spent supporting meetings, students etc, and reduce the carbon footprint of you and the society. Several other societies have opted for electronic only newsletters with an email notification system and it is high time ASBS does this too. Council is discussing this action at the moment and the detail of how it will happen will be in the December issue. If you have a good idea or concern about this then do not hesitate to contact me or another member of the Council.

The Armidale meeting is shaping up to be an exciting meeting – have a look at the website. In 2010 ASBS will be meeting in Lincoln (near Christchurch, New Zealand) in late November. We will have more details available in time for the Armidale meeting. Of course in 2011 there will be a Melbourne meeting in conjunction with the IBC. All in all a very exciting few years ahead.

All the best and see you in Armidale.

Marco Duretto

From the Editors

This issue is somewhat shorter than normal, largely due to the busyness of spring for contributors and editors alike. We consider it important that announcements are made available in a timely manner, and for this reason support the current four issues per year, but have an interest in the idea of making the *Newsletter* available primarily electronically.

Another option to Marco's suggestion above on electronic delivery of the *Newsletter* is for each issue to be placed on the ASBS website as soon as it is complete, with a hardcopy then printed annually or biannually (this would reduce printing costs somewhat, but particularly save on postage and packing rates). This also has advantages from an editorial perspective, a hardcopy printing

requiring a certain volume of content to justify the costs of publication and distribution. Collation biannually or annually for printing would minimise the concern over 'slim' editions of the *Newsletter* while still making a hardcopy available for those who wish to continue receiving it.

Peter Jobson has been kept busy with a move to a new company in PERTH, so please note his new contact details at the back of the *Newsletter*.

Robyn Barker continues to provide various notices for the *Newsletter*. If you come across websites and notices that you think may be of interest to other members of the Society, please pass them on to us so we can include them in the *Newsletter*.

Thanks for your ongoing contributions!

Article

The Australian *Flaveria* (Asteraceae): its correct name and origin status

A.R. Bean
Queensland Herbarium

Flaveria Juss. is a genus of daisies comprising around 23 species. Many species are endemic to the warmer parts of the Americas, while two species are naturalised in Africa or southern Asia, and one (*F. australasica* Hook.) has been considered endemic to Australia.

Flaveria australasica was named by William Hooker in the published journal of explorer Thomas Mitchell. With respect to the *Flaveria*, Mitchell (1848) stated “Sir W. Hooker has determined [this] to be a very distinct and undoubted species of FLAVERIA of which all the other species are natives of the New World”. Hooker’s brief Latin description appeared as a footnote. He described in general terms the shape of the leaves, the clustering of the involucre and the involucral bracts, but made no comparisons with any other species of *Flaveria*.

F. australasica was based on a collection from the Balonne River in the far south of Queensland, in an area not previously visited by Europeans. Robert Brown had previously collected it from islands in the Gulf of Carpentaria in 1802. By 1900 it had been collected from Western Australia, Northern Territory, South Australia, Queensland, and New South Wales. It has been classified as an indigenous Australian species, based on its supposed endemism on the continent.

Morphology

The first murmurings about the lack of morphological distinction of *F. australasica* were expressed by Bentham (1867). He stated “there is very little to distinguish this from the common S. American *F. contrayerva*”. The latter is now considered a synonym of *F. bidentis* (L.) Kuntze. None of the Australian state or regional floras produced since then has commented on the taxonomic relationship between *F. australasica* and other members of the genus.

Powell (1978) provided a systematic revision of *Flaveria*. While he accepted *F. australasica* as a species, he commented that it “is exceedingly close to *F. trinervia*” and that “when attempting to identify herbarium specimens, reference to distribution is often the most reliable method”. He noted some differences in habit and leaf width between glasshouse-grown *F. trinervia* (Spreng.) C.Mohr and *F. australasica*, but such minor differences are readily observable between provenances of any single widespread species. Powell (*loc. cit.*) went on to say that the Australian plants “exhibit slightly longer involucre, somewhat thicker phyllaries, slightly larger disc corollas, and longer achenes”. It was this last character that Powell used in the ‘Key to Species’; the range in achene length for *F. trinervia* was given as 2–2.6 mm, and for *F. australasica* 2.3–4.5 mm. On the face of it, this seems a quite useful distinction, but closer inspection reveals that this is not the case.

The range of achene lengths given by Powell (1978) for *F. trinervia* appears to be too small. It is difficult to find achene measurements in the literature that have been independently made; most authors appear to copy straight from Powell (1978). However, Matthew (1983) gave the achene length for *F. trinervia* as “3 mm”. Yarborough & Powell (2006) repeated the achene length range as “2–2.6 mm”, and yet the accompanying illustration shows an achene 3.0 mm long.

I have measured numerous achenes on Australian specimens of *F. australasica* and find the range to be 2.3–3.5 mm. None could be found that exceeded 3.5 mm in length.

Hence the key difference between *F. trinervia* and *F. australasica* is much weaker than Powell had suggested: *F. trinervia* achenes reach at least 3 mm in length, and probably more; *F. australasica* achenes do not exceed 3.5 mm.

Molecular studies

In recent years, there have been several studies dealing with the various relationships between species of *Flaveria*. Kopriva *et al.* (1996) enumerated 50 phylogenetically informative

nucleotide positions in H-protein cDNAs from 12 *Flaveria* species. They found that “the cDNA sequences of the C₄ species *F. australasica* and *F. trinervia* were identical. The identity was confirmed by sequencing of several independent cDNA clones which were obtained from three separate RNA preparations and PCR amplifications”.

McKown *et al.* (2005) published a phylogenetic study for the whole genus *Flaveria* based on nucleotide sequence data from one chloroplastic and two nuclear genes. The sampling for the study was comprehensive, including five accessions of *F. trinervia* and four of *F. australasica*. The authors discovered that *F. australasica* and *F. trinervia* have identical *trnL-F* sequences, and that their sequences for the nuclear ITS and ETS genes are extremely similar.

Nomenclature

According to Matthew (1983), J.S. Gamble identified some Indian material of *Flaveria* as *F. australasica* in 1921. Matthew (1983) was perhaps the first to list *F. australasica* as a synonym of *F. trinervia*, and yet he did not include Australia in his cited distribution for *F. trinervia*. More recently, Beentje (2006) has also listed *F. australasica* in the synonymy of *F. trinervia*.

Both the morphological and molecular evidence overwhelmingly support the merging of these two entities and this is formalised below:

Flaveria trinervia* (Spreng.) C.Mohr, Contr. U.S. Natl. Herb. 6: 810 (1901); *Oedera trinervia* Spreng., Bot. Gart. Halle 63 (1800). Type: cultivated at Botanical Garden, Halle (?P), *n.v.

F. australasica Hook. in T.Mitch., J. Exped. Trop. Australia 118 (1848), **syn. nov.** Type: Australia. [Queensland], banks of Balonne River, 6 April 1846, T.L. Mitchell 100 (lecto: K, *fide* Powell (1978); isolecto: MEL).

Biogeography

McKown *et al.* (2005) inferred a Mexican centre of origin and dispersal for the genus *Flaveria*. This is also where the greatest number of species currently exists.

F. trinervia is found in southern U.S.A., Mexico, Central America, Caribbean, northern parts of South America, central Africa, Middle East, and India (Powell 1978; McKown *et al.* 2005).

It is thought that *F. trinervia* originated in southern

Mexico (McKown *et al.* 2005), and that present-day occurrences in Africa, the Middle East and India are non-native (GRIN 2009), *i.e.* as a result of human-mediated dispersal.

F. trinervia was collected from the northern coast of Australia in 1802, and therefore it was obviously present in Australia before European settlement. According to traditional concepts in Australia (*e.g.* Everist 1960), this would mean interpreting *F. trinervia* as an indigenous (or native) species. However, Bean (2007) proposed an alternative system for determining the origin status of species in Australia, and under that system, *F. trinervia* should clearly be classified as an alien (or introduced) plant species, on the basis of ecological criteria, its remoteness from native occurrences of the species, and lack of long-distance dispersal mechanism. Furthermore, it would be illogical if African and Asian occurrences of *F. trinervia* were considered alien, yet Australian occurrences continued to be regarded as indigenous.

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Online Flora

Flora of Tasmania
online



A new resource for Tasmania:
www.tmag.tas.gov.au/
FloraTasmania

Marco Duretto
Tasmanian Herbarium

The *Flora of Tasmania Online* (FTO) is a publicly available web-based resource for the identification of plants and the dissemination of modern taxonomic information. FTO was launched on 9 June 2009 by Michelle O'Byrne MHA (Minister, Department Environment Parks Heritage and the Arts). It will be published in parts, each covering one family. FTO contains keys, descriptions, synonymy, distributional and habitat data etc for all taxa with appropriate referencing. For now, the focus of the FTO will be on the Angiosperms (Flowering Plants; 139 families), especially the Dicotyledons (100 families). The first 45 accounts (all Dicotyledons) have now been published. These include families, eg. Griselinaceae, that have never had treatments for Tasmania (or indeed Australia!) published before. Other families have had major changes since the Student's Flora of Tasmania was published and the FTO accounts outline new concepts, species and genera. Families that will hopefully be published later in 2009 include Amaranthaceae (includes Chenopodiaceae), Elaeocarpaceae (includes Tremandraceae - *Tetratheca*), Ericaceae (includes Epacridaceae), Malvaceae (includes Sterculiaceae) and Myrtaceae (*Eucalyptus*).

FTO combines the scientific value of citable and permanently available documents with the speed and accessibility of the internet. FTO is notable in that:

- family accounts are provided free of charge (web pages & PDF files);
- each account is a stand alone, citable, scientific document with unique version and ISBN numbers;
- all accounts will remain publicly available even when superseded by new and revised accounts;
- public feedback is encouraged;
- there is commitment to continuously update and improve the FTO by assimilating public feedback, new research and new discoveries;
- for the first time the flora for the entire State of Tasmania (including Macquarie Is.) will be covered;
- all documents will also be electronically archived (and publicly available) through the State Library of Tasmania.

To assist workers with the new classification system used in the FTO there is an interface to determine what family a genus is placed in. In addition, there are mechanisms for feedback [strongly encouraged as this will help improve and refine the FTO] and adding your name to a notification system. This last system will be used to notify users when new accounts are published and of any other changes to the website.

Tasmanian Museum
& Art Gallery



News

Chris Humphries, botanist and founding fellow of the Willi Hennig Society, died on July 31st, aged 62

David M. Williams & Charlie Jarvis

Botany Department, The Natural History Museum, Cromwell Road, London SW7 5BD, UK

It is our sad task to record the death of Professor Chris Humphries, merit researcher in the Botany Department until his retirement in 2007, on Friday 31st July. Chris was a leading figure in the cladistic revolution in systematics and biogeography. Without his tireless efforts, systematic botany – perhaps systematic biology – would be a very different beast.

Chris joined the Botany Department in 1972 as an assistant curator, a nearly-finished PhD student, coming directly from Vernon Heywood's Botany Department in Reading University. With the exception of three sabbaticals – two of them at the University of Melbourne (1979–80, 1986) and a six month stay as a fellow at the Wissenschaftskolleg zu Berlin (Institute for Advanced Study, Berlin) in 1994 – Chris spent his entire career in the Museum.

Chris's early botanical research was on Asteraceae (daisies) and Macaronesia but during the 1970s and 1980s most of his intellectual effort went into developing, exploring and promoting cladistic systematics and cladistic biogeography. These efforts yielded two much acclaimed books: *Cladistic Biogeography* (1986) (with Lynne Parenti, of the Smithsonian; a revised 2nd edition appeared in 1999) for biogeography, and *Cladistics: A practical course in systematics* (1992) (with staff of the Natural History Museum; a revised 2nd edition appeared in 1998 as *Cladistics: the theory and practice of parsimony analysis*). Both books became standard works in their field.

Chris's interest in art made him the perfect choice for organising and annotating the first complete full-colour edition of Banks' *Florilegium*, published between 1980 and 1990. The project marked the beginning of Chris's love affair with Australia and her flora, the enigmatic southern beeches and the problems of explaining organism distribution in the Southern Hemisphere. The

Florilegium consists of over 700 botanical line engravings made from Sydney Parkinson's watercolours, recording the plants collected by Joseph Banks and Daniel Carl Solander on Captain James Cook's first voyage around the world (1768–1771).

After 1990, Chris (with Dick Vane-Wright and Paul Williams, both of the Entomology Department) put biogeographical matters to more practical use, addressing what they called the "Agony of Choice" – the conservationists' dilemma – with their 'WorldMap' approach to conservation biology, combining taxonomic, ecological and biogeographic information into one system. After a decade of collaboration with many different and diverse groups of researchers working on many different organisms, Chris returned to more fundamental matters in biogeographical investigation and to the distribution of plants on Macaronesia, the islands he began with as a student.

During his career, Chris received many honours; the Linnean Society's Bicentenary Medal in 1980 and their Gold Medal in 2001; he was also an Honorary Fellow of the American Association for the Advancement of Science. He was President of the Systematics Association (2001–2003) as well as its Treasurer (1996–1999), and President of the Willi Hennig Society (1989–1991), being elected a Fellow *honoris causa* in 1998. Chris was also Vice-President and Botanical Secretary of the Linnean Society (1994–1998).

In 2008, a three-day Meeting was held in his honour at the Linnean Society; a Festschrift will be published in early 2010.

Web references

See also: <http://www.telegraph.co.uk/news/obituaries/science-obituaries/6039183/Chris-Humphries.html>

<http://www.systass.org/news/> [both accessed 6 Nov. 2009.

2009 ASBS Conference Update

“Systematic botany: from science to society”

including a workshop on

“National accreditation of providers of biological identification”

1–3 December 2009, University of New England, Armidale, NSW

Overview

The theme of the conference is intentionally broad and inclusive—in line with the strong relevance of systematics to science and society. Together with the included workshop aimed at quality assurance in identification, and the critical role of vouchers, herbaria, and identification and planning tools, we hope to gain positive media coverage. More than 70 people have committed to the conference, including registrants from England, New Zealand, the Netherlands, and USA.

Web site updated

Please see <http://www.une.edu.au/herbarium/asbs/> for updates. More updates are planned, including an outline of the program. The conference dinner will be at McCrossin's Mill, Uralla (<http://www.uhs.org.au/index.php#>).

Student assistance and prizes

ASBS conferences provide great opportunities for students to meet other students and botanists, present their projects in a constructive environment, network, and discuss future study options.

Students, why not discuss your plan to attend the ASBS 2009 conference and present a poster or oral paper with your supervisor and submit an abstract?

- Student members of ASBS presenting a talk or poster can apply for student assistance to attend the conference (application form: www.une.edu.au/herbarium/asbs/for-students.php).
- The Australian Systematic Botany Society will award a prize for both the best student oral presentation and best student poster presentation. Participants need to be a member of the society for consideration. Registration is priced to encourage full-time students to join ASBS before/when registering.

Registration & call for abstracts

Standard registration ends 31 October 2009.

We welcome submission of abstracts for talks and posters, and guidelines are online <http://www.une.edu.au/herbarium/asbs/call-for-abstracts.php>.

Deadline for submission of abstracts: 30 September 2009

Poster presentations may be augmented by short oral presentation

Those presenting posters will be given the opportunity on Tuesday afternoon, 1 Dec 2009, to make a brief presentation (1–2 min), with PowerPoint presentation (with 1–2 slides), to highlight the findings of their poster. Following that, we will adjourn from the lecture theatre to the poster room for a dedicated poster session.

**ASBS2009 additional workshop: ‘Australian Asteraceae in the Global Compositae Checklist’
10.00 am – 4.00 pm, 30 November.**

<http://www.une.edu.au/herbarium/asbs/additional-workshop.php>

The Global Compositae Checklist project has been running for more than three years, currently out of Wageningen University in the Netherlands by Christina Flann (Checklist Editor), in collaboration with Landcare Research in New Zealand.

The project utilises existing electronic resources for the family and integrates the data into a database using a biodiversity informatics approach. The usability of the website and its outputs need to be tested now, and as Australia is a well represented region it has been chosen as the first test region. All of the state census data have been included and Brendan Lepschi, who has been working on the Asteraceae for the Australian Plant Census, will also be involved in the workshop.

This workshop will be an opportunity to obtain feedback from people who work or have worked on specific groups within the Australian Asteraceae. The workshop will involve trying out the website and discussing the reports produced and giving detailed feedback on taxonomy and nomenclature for any group of study.

The workshop will be free and lunch and tea breaks will be provided. Attendance is open to anyone with an interest. If you would like to attend, please contact christinaflann@gmail.com

Please let us know...

We welcome use of the N.C.W. Beadle Herbarium around or during the conference. Please email as soon as possible regarding extended or special access.

Some collecting under the N.C.W. Beadle Herbarium permit should be possible during the field trip, in line with permit conditions. Please email beforehand, if you wish to collect during the field trip.

Jeremy Bruhl for organising committee
jbruhl@une.edu.au

ABRS Report

ABRS Eureka Prize

Congratulations to Dr Conrad Hoskin, winner of the 2009 ABRS Eureka Prize for Early Career Species Discovery. A number of high-quality entries were received this year from young taxonomists. The judges were impressed by the scope of Dr Conrad Hoskin's work and his dedication to ensuring his taxonomic work in herpetology was applied to conservation planning. The award was presented to Dr Hoskin at a ceremony in Sydney by Chris Darwin, the great-great-grandson of Charles Darwin. 2009 marks the 200th anniversary of Charles Darwin's birth and the 150th anniversary of the publication of *On the Origin of Species*. Dr Hoskin, who is based at the Australian National University's School of Biology, received \$10,000 in prize money.

Our other finalists were Dr Claire Baker and Dr William White. Claire is an entomology consultant from Queensland and has, in recent research, identified five new species of glow-worm as well as a new species of parasitic wasp. William is an ichthyologist based in Hobart, who has, to date, identified 12 new species of shark and fish. His research is focused on the taxonomy of Indo-Pacific fishes, in particular sharks and rays. Claire and William were also selected as finalists for the 2009 Eureka Prizes People's Choice Award.

Staffing

We welcome Raelee Chapman, our new business and grants officer, who joined us on September

7, and the more recent appointment of Catherine Selwood, who will be working for the next 10 months with Amy Jarrott on policy issues. Grant Heino, a member of the Department's graduate program, completed his placement with us on August 21. Recruitment is underway for a officer to work on the Australian Fauna Directory, to be appointed until the end of the financial year.

ABRS National Taxonomy Research Grant Program

ABRS is currently reviewing the Australian Botanical Liaison Officer position, in association with the ABRS Advisory Committee and the Council of Heads of Australasian Herbaria (CHAH). As a result, there will be no 2009/2010 ABLO.

ABRS is pleased to announce that, in the interim, it has formed a partnership with the Winston Churchill Memorial Trust to fund two overseas research scholarships for taxonomic researchers of \$25,000 each (up to two months in duration). One of the sponsored Fellowships will have a specific early career focus and be available only to researchers who are a maximum of 10 years post-PhD. The other fellowship is open to more experienced Australian taxonomic researchers.

Application forms and other documentation for the 2010 Churchill Fellowships are available for download from <http://www.churchilltrust.com.au>. We look forward to many excellent entries.

[Ed: Also see notice on p. 8]

Flora of Australia

The next volume of the *Flora* to go to press will be volume 39, the first (sequentially) of the monocot volumes, including 16 families. After that, expect volumes 26 (Meliaceae, Rutaceae and Zygophyllaceae) and 23 (Euphorbiaceae). In order to address the backlog of material in-house, we will also be publishing individual families and part-families as fascicles, and putting some manuscripts up on the web, linked to the *Flora of Australia On-line*. Annette has been travelling to most of the Australian herbaria to discuss this with authors of manuscripts which have been in-house for some time, and to talk to authors of manuscripts still to be submitted, to develop a revised production schedule.

In Press

Algae of Australia – Marine Benthic Algae of Lord Howe Island and the Southern Great Barrier Reef 2. Brown Algae. **Author: Gerald T. Kraft**

Lord Howe Island, an oceanic outcrop of volcanic origin situated between Australia and New Zealand, is fringed by the world's southernmost consolidated coral reef. The Capricorn Group of the southern Great Barrier Reef is a series of

patch reefs and low coral cays. For more than 30 years Dr Gerry Kraft, along with his students and colleagues, has studied the species-rich marine algal communities of these reefs, paying special attention to subtidal habitats. This authoritative account, documenting the brown algae of Lord Howe Island and the southern Great Barrier Reef follows a highly regarded volume on the green algae (2007) and will, in due course, be followed by treatments of the red algae.

This volume includes 7 orders, 12 families, 38 genera and 92 species of benthic brown algae. Richly illustrated with photographs, many of them in colour, it includes an introduction to the islands, identification keys to genera and species and a comprehensive description and discussion of each taxon. The genera *Lucasia* (Sporochnales) and *Herringtonia* (Dictyotales) are newly described, as are 29 species of the genera *Discosporangium*, *Feldmannia*, *Hincksia*, *Hecatonema*, *Myrionema*, *Streblonema*, *Compsonema*, *Myriactula*, *Lucasia*, *Sphacelaria*, *Dictyota*, *Distromium*, *Lobophora*, *Padina*, *Spatoglossum* and *Sargassum*.

The book will be available from CSIRO Publishing for about \$125.

Cameron Slatyer and Annette Wilson

ABLO Report

On the 31st August (a Bank Holiday!) I officially finished my period as ABLO. Hard to believe that we have been here over a year. The period however has been remarkably productive. I have received over 160 substantial enquiries (and a number of minor ones) from Australia, New Zealand and the UK for assistance with a very wide range of matters, from locating and making images of type and other specimens in herbaria (K, BM, CGE, OXF, P, E, NMW, LINN, Chelsea Physic Garden and FI), examining herbarium specimens, assistance with locating and copying rare bibliographic material, assistance with accessing archival documents in K and BM, identification of Australian specimens, assistance with contacts in Australia and planning field trips there, and a number of miscellaneous tasks. Tessa ('Assistant ABLO') and I have also gathered a wealth of material for our Allan Cunningham

project, both historical and specimen records, which will keep us busy sorting and writing for many years to come. I hope to deliver a short paper or two on some aspects of this project at the ASBS Conference in December. My other main research project, on *Cassinia*, has also progressed well, with 2 papers submitted and accepted for publication, and the final part of the monograph in draft form. The opportunity to visit British and European herbaria and examine specimens there has been of great value in improving the quality of the data in these papers.

We will be remaining in the UK until 23 October, although not all of the time will be at Kew. I will retain my Kew logon until then, and am happy to continue fielding ABLO-type enquiries. However, please be patient if I do not reply immediately, and please keep the questions simple! One of our last trips before returning to Australia will be

to Florence, where I have some work to do for myself and others in FI. I can probably fit in a few extra tasks if necessary, but please let me have requests as soon as possible.

Kew Gardens activities

As I have mentioned in earlier reports, this year as well as being an anniversary for Darwin, is also the 250th Anniversary of the founding of the Royal Botanic Gardens, Kew. There has been a continuous series of feature articles in the press, and many special activities for the public and the staff. Two events in particular were featured. The Titan Arum (*Amorphophallus titanum*) flowered three times, the last time, on 25th July, with an inflorescence 2.48 m tall, the largest ever. In August the Kew gardens staff undertook the delicate task of repotting the star attraction of the Palm House, the ancient *Encephalartos altensteinii*. This plant, one of the oldest in Kew, was collected by Francis Masson in the early 1770s on Captain Cook's second voyage, in the eastern Cape region of South Africa, and was planted at Kew in 1775. It is now 4.4 m tall (well, long actually as it insists in growing almost horizontally and requires props for support), and weighs over a tonne. It grows about another 2.5 cm every year. It is now safely repotted in "a bespoke mahogany hardwood box hand-crafted on site".

New Honorary Appointments system at Kew

Kew has just announced a new system of Honorary appointments for herbarium staff. There will be two categories:

Honorary Research Associate: These are for those using Kew as a research base long term (e.g. retirees, self funded researchers). They will require a Kew sponsor, who will prepare a case for consideration by the Senior Science Group.

Honorary Research Associate (Visiting): This category is for those based at other institutions, but visiting Kew regularly for cooperative work with Kew staff.

All HRAs will be 3 year appointments.

These changes will not impact on short term visitors, who will need to contact Kew in advance to obtain visitor passes, or supervision by a Duty Officer during their visit. In the past these

arrangements were made by the ABLO, but in the absence of an ABLO, will need to be arranged directly with Kew.

Anniversary of discovery of *Welwitschia*

As well as all the other anniversaries this year, it happens to be the 150th anniversary of the discovery of *Welwitschia* in Namibia, described by J.D. Hooker as not only one of the world's most interesting plants, but also the ugliest. To mark this occasion there was a lecture delivered at the Linnean Society of London on 3rd September by Sara Albuquerque, who has been researching the life of Friedrich Welwitsch, and the fate of his collections. The parallels between Welwitsch and my studies on Allan Cunningham are remarkable: collecting under very difficult conditions in largely unexplored countries, a non-chronological collection numbering system, mixed collections, difficulties with typification, dispersal of collections by others after the collector's death, often without full documentation, many collections being types, etc etc. And just to prove that it is a small world, at the same meeting, one Dr Peter Bridgewater, former CEO of ANCA, and one of the architects of ABRS, was admitted in person as an FLS!

Herbarium closures

Kew staff began occupying the new herbarium wing (Wing E) from 1st August, and this wing is now the official entrance to the herbarium. The old entrance via Hunter House is now closed. Arrangements are in hand to start moving collections (both herbarium specimens and library materials) into the new space very soon, once a couple of minor glitches are fixed. The plant families involved will be the legumes and daisies, so some (rolling) delays in access to these collections can be expected in coming months. Thereafter the rest of the collections will be rearranged in APG order.

The new wing at BM is scheduled to be officially opened on 14th September. I understand that the General Herbarium has been moved into the new facility, and shelved in APG order. However the European Herbarium is still to be moved, so access to the collection will be restricted for some months yet. Those with small, urgent requests (no loans) can try requesting help via the contact

email address listed in Index Herbariorum, but remember that the staff are still fully occupied with the move and rearrangement, and will have very limited capacity to respond.

It has been announced that the herbarium at the Natural History Museum in Paris is shortly to be refurbished, with the collection space converted to mobile shelving, and that at the same time the collections will be rearranged in a single systematic order (APG) instead of the present arrangement in three geographical zones. All collections are to be digitised as part of the project, which is due for completion by 2012. A report on the move appeared in the *Guardian Weekly* (<http://www.guardianweekly.co.uk/?page=editorial&id=1205&catID=17>). Those planning a visit to P over the next few years would be well advised to enquire well in advance on access arrangements.

Closing remarks

As I reach the end of my ABLO appointment I would like to thank all those who made it possible: ABRs, CHAH and those who supported my application. I came with a very ambitious program of research, and to the surprise of most (including myself) have accomplished all that I had planned, and more beyond. While I was generally aware of the taxonomic resources available in London, the UK and nearby Europe, I now have an even greater appreciation of just how vast they are. The type material of Australian (and New Zealand) plants in K and BM alone must equal or exceed that in all Australian herbaria put together, without even considering material in CGE, OXF, E, P, FI, G, B, and other major herbaria easily accessible from the UK. Much of this material has never been

identified as types, and no loan request can equal the opportunity of personally physically searching and studying the collections. Added to this, and largely untapped by Australian botanists so far, is an Aladdin's Cave of archival material (journals, letters, specimen lists, original maps etc) which documents early exploration and plant collecting activities in Australasia. I have dipped into this in K and BM for my Cunningham project, in a small way, and thank the curators of this historical material for their cheerful assistance in allowing me access and helping me to navigate it. This historical material is of course only available to those who come to London or Europe. I also wish to thank wholeheartedly the Director, Keeper and staff at Kew, who have provided helpful, friendly and indispensable help and hospitality over our year in their midst. I also thank the staff of the herbarium at the Natural History Museum, London, who cheerfully suffered our visits over an intense 3–4 month period. Also, of course, the staff at other herbaria visited (OXF, CGE, NMW, E, P, FI, Chelsea Physic Garden).

Finally, I leave with some sadness, that there is no ABLO for me to hand over to, the first break in the position in some 70 years. I trust that the review currently underway will find a way to continue the position in some form. I personally believe, having seen it over the years, both as a user, and now as a deliverer of services, and as a researcher, that it provides incredibly good value for money, as well as providing a magnificent training opportunity for taxonomic botanists, young and old.

Tony Orchard
ABLO 2008–09

ABRS Churchill Fellowships

In 2010, ABRs has partnered with The Winston Churchill Memorial Trust to offer Fellowships to undertake overseas taxonomic research on the Australian flora and fauna.

Two fellowships (\$25,000 each) are available:

One for an early career researcher (maximum of 10 yrs post-Ph.D.) and;

One for an established career researcher (established in their field and beyond 10 yrs post-Ph.D.)

Applications for the Churchill Fellowships

are CURRENTLY OPEN and close on 26 FEBRUARY 2010.

Contact the Churchill Trust National Office to receive your application package or download it from the website.

<http://www.churchilltrust.com.au>

Applicants who are short-listed for a sponsored fellowship but do not receive the sponsored fellowship may be eligible for a general Churchill Fellowship (this will be at the discretion of the Board of the Churchill Trust).

The Churchill Trust is currently seeking applications for
THE 2010 AUSTRALIAN BIOLOGICAL RESOURCES STUDY CHURCHILL FELLOWSHIPS

For the study of overseas taxonomic research on Australian flora or fauna. Two Fellowships are available - one for an early career researcher and one for an established career researcher.

 Australian Government
 Department of the Environment, Water, Heritage and the Arts

THE ABRs CHURCHILL FELLOWSHIPS 2010
 The Australian Biological Resources Study (ABRS) is the Australian Government focal point for species discovery. ABRS is a program within Parks Australia Division of the Department of the Environment, Water, Heritage and the Arts.

ABRS aims to provide the underlying taxonomic knowledge necessary for the conservation and sustainable use of Australia's biodiversity. ABRS has been internationally recognised for its taxonomic information resources and support of taxonomic research.

The Churchill Trust is honoured to assist ABRS with the facilitation of awarding Fellowships in this research area.

 The Winston Churchill Memorial Trust
 GPO Box 1536
 Canberra City ACT 2601
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- No prescribed qualifications are required
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 Applications open 1 November 2009 and close 26 February 2010

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CALL FOR APPLICATIONS

ASBS Inc. Business

New Members

Council is pleased to welcome the following new members to the society for 2008/9. This is the first announcement of new members in just on a year (since newsletter 136), and the Treasurer, in particular, apologises that this formal welcome to some new members was not made sooner.

- Ms Rose Barrett, School of Botany, University of Melbourne, Vic.
- Mr Mason Campbell, Australian National University, A.C.T.
- Ms Nicolai Cooper, Dubbo, N.S.W.
- Mr Lachlan Garland, Sandringham, Vic.
- Dr Chrissen Gemmill, University of Waikato, New Zealand
- Ms Susan Harvey, Queensland University of Technology, Qld
- Dr John Hosking, N.S.W. Department of Primary Industry, N.S.W.
- Mr James Ingham, University of Queensland
- Mr Duncan Jardine, James Cook University, Qld
- Miss Donna Lewis, Northern Territory Herbarium, N.T.
- Mr Christopher Moran, University of Melbourne, Vic.
- Ms Louisa Murray, Croydon, N.S.W.
- Ms Karen Muscat, Ferntree Gully, Vic.
- Mr Paul Musili, University of New England, N.S.W.
- Dr Leon Perrie, Museum of New Zealand Te Papa Tongarewa
- Ms Caroline Puente-Lelievre, Australian Tropical Herbarium, Qld
- Mr Eren Reid, Botanica Consulting, W.A.
- Miss Jordan Reid, Mt Lawley, W.A.
- Mr Phillip Rose, University of New England, N.S.W.
- Ms Elizabeth Sheedy, School of Botany, University of Melbourne, Vic.
- Dr Marlien van der Merwe, National Herbarium of N.S.W.
- Mr Mark Wallace, Kings Park & Botanic Garden, W.A.
- Mr Daniel Warner, Queensland University of Technology, Qld

Michael Bayly, Treasurer

Book reviews

Saltmarsh Ecology

Greg Kerr
Ecological Associates

***Australian Saltmarsh Ecology*. Neil Saintilan (Ed). Published 2009 by CSIRO Publishing Collingwood Victoria. Softback (236 pages, 248 mm × 170 mm). AU \$99.95 ISBN: 9780643093713.**

As a secondary teacher in Gippsland 20 years ago I set out to get my year 11 students excited about their local environment and its fauna and flora. Using the Rotamah Island Bird Observatory in the Gippsland Lakes as a base, the neatly zoned saltmarsh around the island and its associated fauna were a potentially rich ground for teaching. Sadly, I had to hunt far and wide for the limited information available or develop the material myself. This book was the resource I needed! Pulling together all aspects of the ecology and management of Australian saltmarshes in a comprehensive and easily accessed resource, it is an excellent reference for everyone from the interested amateur to the professional ecologist or policy maker. Not only does it succinctly bring together our understanding of saltmarsh ecology in Australia, clearly outline the importance of saltmarsh habitat for fauna and identify a range of substantive knowledge gaps and areas for research, but it goes on to provide an overview of management issues and conservation strategies, and importantly it gives clear guidelines and useful aids to the mapping and monitoring of saltmarshes.

Coastal saltmarshes are intertidal communities

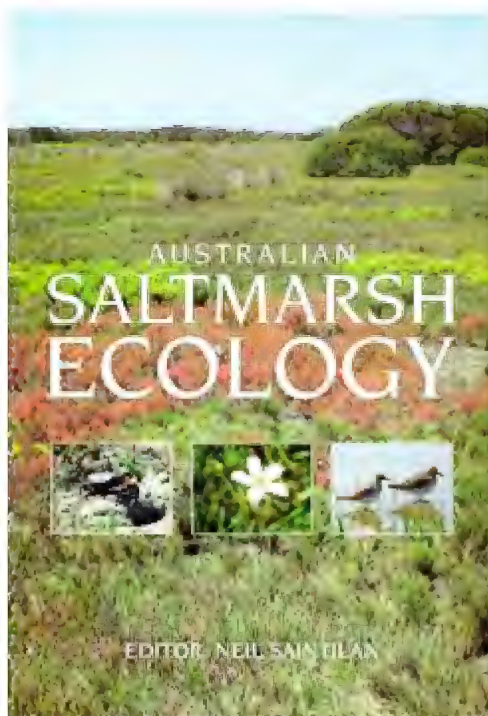
of high ecological value that are increasingly under threat throughout Australia and globally. The literature on saltmarsh ecology is overwhelmingly biased to North American and European saltmarshes. However, using this strong international knowledge base the editor Neil Saintilan and 16 other contributors from a wide range of academic and government backgrounds, provide an important synthesis of our embryonic understanding of Australian saltmarsh ecology. With the extent of saltmarsh decline within Australia becoming apparent and

research beginning to unravel the importance of the ecosystem through its contribution to the ecology of the coastal zone, this book provides a basis for ongoing research and management.

The first chapter by Paul Adam places Australian saltmarshes in a global context and outlines regional and continental patterns of variation, emphasising the floral distinctiveness and diversity of southern saltmarshes.

Neil Saintilan concisely summarises saltmarsh plants, their structural forms and zonation and reviews their biogeography in Chapter 2. He simplifies

and neatly summarises the saltmarsh plants and their characteristics, judiciously referring to key resources. This material provides the basis for the third chapter in which the geomorphic settings of saltmarshes are outlined state by state. The historic and recent interactions between mangroves and saltmarshes are reviewed, before a review of the complexity of interactions among saltmarsh, sea



level rise, sedimentation and elevation is used to outline hypotheses on the decline of saltmarshes.

Chapters 4 to 8 work systematically through many elements of the faunal ecology of Australian saltmarshes covering the ecology of molluscs, crabs and mosquitos in saltmarshes and in turn the importance of saltmarsh as habitat to fish and a range of terrestrial vertebrates including birds and bats. It is apparent throughout each of these chapters that our understanding of the faunal ecology is fragmentary and embryonic in most aspects, but the story that is told is still full of complexities, making for enjoyable reading, while

outlining the wealth of research opportunities.

Chapters 9 and 10 provide an excellent overview of issues involved in the protection, restoration and management of saltmarshes and useful resources in their mapping, assessment and monitoring.

In light of the decline in saltmarsh extent and health in many areas of Australia there is a great need for effective management of saltmarsh wetlands. This book provides an essential resource for all interested in this critical habitat, which is vulnerable to the effects of climate change, sea-level rise and coastal development.

Pinnacles – not fossilized trees, but ...

Russell Barrett
Kings Park & Botanic Garden

***Pinnacles*. Ken McNamara. (Revised edition) Published 2009 by the Western Australian Museum, Welshpool, WA. Softback (64 pages, 180 mm × 130 mm) AU \$18.95. ISBN: 9781920843441.**

Pinnacles are often mistaken for fossilised plant trunks. This was the inspiration for Ken McNamara, the former Senior Curator of Invertebrate Paleontology at the Western Australian Museum to write this concise and informative booklet explaining their origins.

While not fossils, these intriguing structures do have their origins with plants. Formed in once mobile dunes, the landscape must first be stabilised by plants to allow for the lithification of the sand to limestone.

The presence of plant roots in the actively forming limestone lead to uneven rates of lithification and the presence of solution pipes where roots have allowed increased water flow. The pinnacles themselves are sections of limestone which have

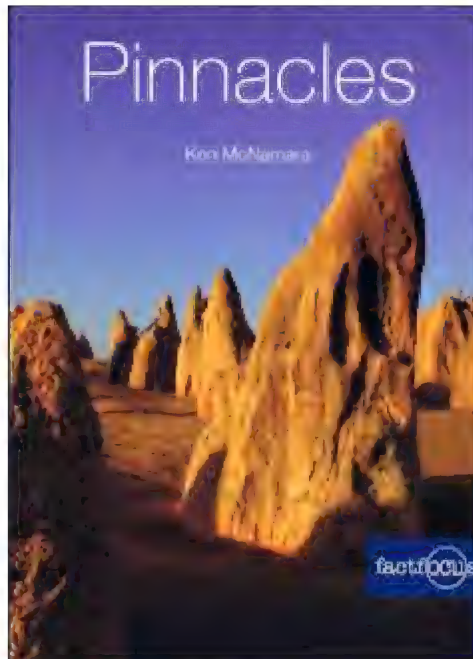
solidified to a greater extent than the main dune, in a large part due to the presence of plant roots and their associated influences on soil (e.g. the release of oxalic acid from Proteaceae roots). The pinnacles themselves are formed by subsequent

periods of aridification which lead to loss of vegetation and erosion, these hardened pinnacles the resulting landscape.

Published as part of the Western Australian Museum's new *Fact Focus* series, a revised edition of Ken's booklet *Stromatolites* is now available and a revised edition of *Ancient Floras* is also due to be released later this year.

At the recent launch of this revised booklet at the Western Australian Museum, Ken McNamara suggested that such booklets were a useful means of communicating

scientific information to a general audience and encouraged the production of similar booklets of a broad range of topics. The challenge has been set for all of us.



Where did I read that? Check ABC!

Russell Barrett
Kings Park & Botanic Garden

***Australian Botanist's Companion*. Alex George. Published 2009 by Four Gables Press, Kardinya, WA. Hardback (671 pages, 250 mm × 175 mm) AU \$77.00 + \$13.00 p&p. ISBN: 9781920843441.**

Australian Botanist's Companion (ABC)—an excellent starting point for all things botanical in Australia. This mighty tome sets out to provide the essential background required by anyone with an interest in Australian botany, be it history, taxonomy, or publishing, just some of Alex's long-held passions.

Arranged in eleven chapters, ABC provides a very useful compilation of botanical information, and information of relevance to botanists (and many other scientific disciplines). The book is designed to be dipped into repeatedly for many different purposes, though I recommend a good skim over the whole book as many surprises (pleasant ones) await within its pages.

Starting with a chapter on standard texts and sources, ABC provides a list of the essential resources with a brief summary of their content, most being taxonomic in focus.

Plant names are only the beginning for chapter two, with various references to fungi, animals and bacteria as well, with many of the texts being international in scope.

References for geology, fossils and landscape features are provided in chapter three, listed in order of Australia-wide, state-by-state and island territories. A geologic timescale is a useful inclusion (who can actually remember it...?). Obvious additions to the vegetation references are Specht (1972) (listed in ch. 6) and Keith (2004).

Various Institutions, organisations and societies with botanical interests are summarised in chapter four, with contact details, basic history, with directors/administrators/curators listed for herbaria. The ASBS is given a generous covering here, with significant events and individuals in the Society's history summarised.

Publishing and writing, two critical points for any researcher, are covered in chapter six. A must read, and mercifully concise.

Notes are given on the compilation of bibliographies and bibliographic data are presented for a large number of Australian book series, journals and newsletters, most usefully, including publication dates for each volume or issue (where known).

Geographical references are usefully summarised, with notes on commonly made errors in citation. There are some very useful references and websites for locating place names, both past and present, many of which I was not aware of. There is a brief section of biogeographic systems for Australian states, however I found the absence of any mention of the many iterations of IBRA (Thackway & Cresswell 1995; Environment Australia 2001), somewhat

puzzling, however as Alex commented, he had to stop compiling information and publish what he had at some stage. There will always be extra material that can be added to such a volume. Alex welcomes notification of any such omissions or errors so that they may be rectified in any subsequent editions. A larger proportion of the text is devoted to Western Australia than other states, simply as a reflection of Alex's knowledge. Additional comparative information for other



states would be gratefully received.

Chapter 9 is a single page emphasising the requirement for appropriate licences before collecting flora in any Australian state, an obligation to lodge duplicates with the state of origin herbarium, and a list of licencing authorities in each state.

Chapter ten, the largest in *ABC*, lists all of the Australian plant collectors to 1900 as far as Alex has been able to trace. A chronological list of major expeditions resulting in botanical collections provides a usefully summary of early botanical endeavour in Australia. Most of the 361 pages in this chapter are devoted to individual collectors, where notes are provided on birth, death, occupation, collections, expeditions, publications, herbaria hosting collections and further references. Useful notes explaining various initials on collections (e.g. F.R. for Forest Ranger) are helpful in making correct collector citations in papers. For the record, Alex has traced 7 'Allen's'; 17 'Brown's'; 8 'Carter's'; 7 'Dixon's'; 5 'Elliot(t)'s'; 6 'Fraser's'; 4 'Giles'; 8 'Hall's'; 3 'Irvine's'; 12 'Johnston's' (+6 'Johnstone's'); 14 'King's'; 5 'Lamont's'; 13 M(a)cDonald's & 13 'Moore's'; 3 'Norton's'; 2 'O'Shanesey's'; 5 'Parker's'; 1 'Quoy'; 8 'Robinson's'; 21 'Smith's'; 10 'Taylor's' & 10 'Turner's'; 1 'Urquhart'; 2 'Veitch's'; 11 'Walker's'; and 1 'Zichy-Woinarski.' If anyone can find a pre-1900 collector with a surname beginning with 'X' then I'm sure Alex would be only too happy to complete the alphabet.

Finally, chapter eleven reviews the major expedition and survey ships to visit Australia, documenting their dates of travel and ports of call (thus establishing the approximate date and location of many otherwise unspecified historical collections). An interesting item here is the tonnage of the ships. At 368 tons, it is no wonder that Cook had a tough time refloating the *Endeavour* after it struck the Great Barrier Reef. The *Investigator* weighed in at 334 tons (though probably considerably more when loaded with specimens and provisions...). The *Beagle* was a mere 235 tons.

A veritable gold mine of botanical information, I have already found the historical notes to be of considerable help. In reviewing the typification

of *Lepidosperma* species, I was puzzled by an Oldfield collection of *Lepidosperma drummondii* Benth. from the 'Salt River,' the current name for a river in the central wheatbelt of WA and outside the current distribution of this taxon, plus a location not known to have been visited by Oldfield. I was thus much relieved to find that 'Salt River' is a former name for the Pallinup River, within the current distribution for *L. drummondii*, and known to have been visited by Oldfield.

Place name changes are difficult to keep up with at the best of times. King Edward River Station in the Kimberley is listed as the new name for Doongan Station, however it has recently changed *back* to Doongan Station!

Though with a large section on early Australian botany, Alex has made every attempt to add current information, up to and including the 2009 Armidale ASBS conference in eager anticipation!

Even with Alex's careful eye for mistakes, a few minor errors have crept in. A reference to page 144 on p. 8 should be page 145. 'Also' received a double 'a' on page 18. A subtitle on page 153 is in Roman rather than italic font. On page 217, Alex has hand-corrected the name Edmund Lockyer to Charles Fremantle (the claimant of Western Australia for Britain) on each copy.

ABC is a fitting summary for a botanist who has devoted his life to advancing our understanding of the Australian flora, and ensuring that the discoveries, once made, are communicated effectively, to fellow scientists and the general public alike. Every botanist with an interest in the Australian flora should have a copy of *ABC* in their library.

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A masterful composition

Russell Barrett
Kings Park & Botanic Garden

***Systematics, evolution, and biogeography of Compositae*. V.A.Funk, A.Susanna, T.F.Stuessy & R.J.Bayer (eds). Published 2009 by IAPT, Vienna, distributed by Smithsonian Institution, Washington. Hardback (965 pages, 287 mm × 220 mm) US \$100.00 + \$20.00 p&p. ISBN: 9783950175431.**

The masterful composition of composites on the front cover gives a good impression of the book – filled with a large amount of detail, expertly woven together to create a full picture of the daisy family. The combined efforts of eighty specialists (synantherologists), *Compositae* represents a very thorough treatment of the family (Asteraceae for those less traditionally inclined), drawing together the great number of publications (particularly molecular studies) from recent years. This volume complements the recently published descriptive treatment of the family in *The families and genera of vascular plants* (Anderberg *et al.* 2007).

While the focus and largest section of the book is on “phylogeny, classification, evolution, and biogeography,” three introductory chapters provide an excellent history of research, systematics and economic usage of the family, followed by six chapters on character evolution at the family level. These chapters cover a significant range of topics which provide a useful model for progressing our understanding of other plant families. The depth of research presented on a single family is inspiring and will hopefully lead to the production of similar volumes for other families.

In the history of systematic studies, among many contributors to Compositae systematics, attention is given to the significant work of George Bentham, particularly through his collaborative work with Joseph Dalton Hooker on *Genera Plantarum*. His monumental work *Flora Australiensis* is incorrectly said to comprise six volumes in the text, though correctly cited as seven in the references.

Compositae have been the focus of many chromosome studies and chapter four reports that some 58,320 counts have been made for the family which exhibits an extraordinary range, from $2n = 4$ to $2n = 432$! Pollen morphology has likewise

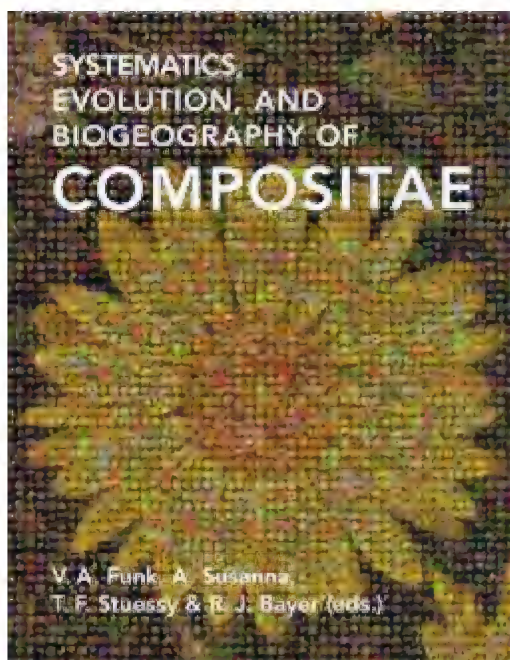
been a busy field, and with the beauty and diversity of characters available in the family, it is easy to see why (e.g. fig. 7.11). Useful explanations of pollen morphology are given, along with descriptions of the pollen for each tribe.

Chapter nine presents some interesting studies on chromosome diversity and species diversification on oceanic islands suggesting the need for parallel studies in other plant groups.

With a significant diversity of both native and alien Compositae, this volume has a great deal of information relevant to the

Australian flora. Many of the closest relatives to Compositae have their distributions centred on Australia (except for the small South American Calyceraceae which is shown to be the sister family, also suggesting the origin of Compositae; Chapter ten). Compositae is divided into 12 subfamilies, with 43 tribes recognised.

Rhaponticum australe (Gaudich.) Soják. and



Saussurea (Hemistrepta) lyrata (Bunge) Fisch. & C.Meyer. are noted as being the only Carduoideae considered native to Australia, and their occurrence is not easily explained. In the Cichorieae, *Picris* L., *Ixeris* (Cass.) Cass., *Taraxacum* F.H.Wigg and *Microseris* D.Don also stand out as surprise native elements in the Australian flora, though their natural occurrence is not in question. The Australian genus *Actites* Lander is relegated to synonymy under *Sonchus* L. In the Arctotideae, the Australian genus *Cymbonotus* Cass. stands out as an unusual disjunction of over 7,000 km from southern African relatives.

In the problematic Vernonieae, a narrow view of genera has recently been settled on, with the 1,000 odd species formerly included in *Vernonia* Schreb. scattered across 126 genera now recognised in the tribe. Senecioneae are still a work in progress, with the disintegration of *Senecio* L. s.l., the *Brachyglottis* Forst. & Forst.f. group being of particular interest in Australia.

Chapter 36 provides a new phylogenetic analysis of the Gnaphalieae, with many Australian taxa included for the first time (80 genera are endemic to Australia). In the Astereae, it is no surprise to see that *Olearia* is grossly polyphyletic, species being spread across numerous clades.

Flaveria Juss. is still considered to have a naturally disjunct distribution between Africa, India and Australia, a disjunction suggesting similar origins for *Pentalepis* F.Muell. and Australian species of *Eclipta* L. This disjunction may be supported by the recent description of a new *Flaveria* subspecies endemic to the Pilbara (Keighery 2007) (but see Bean, this issue for an alternate view).

Chapter 44 concludes the book with a metatree analysis of the Compositae and a summary of the major recent findings for each tribe.

The book includes a very usefully 25 page, illustrated glossary of terms as they apply specifically to Compositae (Appendix A), particularly handy for those who don't regularly work on the family. Numerous micro-characters are also defined and well illustrated in chapter 6. A small number of names validated here for the first time are listed in Appendix D. A number of lectotypifications are made for genera in chapter 24 (Cichorieae).

For those who find the content interesting, but still want to know more, there is a 55 page bibliography of pollen literature (Appendix B) and a further 56 pages of general references on a very broad range of topics concerning the Compositae. Further information is also available from the website: www.compositae.com.

The index includes only taxon names. Given the lengthy introductory chapters to the book, entries for some of the major topics covered there may have been useful in the index, however the largely taxonomic arrangement of the text and a comprehensive contents outlining each chapter means that this is not a major inconvenience. Many of the preceding volumes on Compositae systematics have been presented in two volumes and perhaps this volume should have been presented likewise, the weight of the pages bearing heavily on the spine which may not respond well to frequent use. I noted one typo on page 339, where Jussieu's *Genera Plantarum* is cited as published in 1989 rather than 1789.

The claim on the back cover and in the preface that with over 23,000 species, Compositae are the largest family of flowering plants is perhaps ambitious as Orchidaceae claimed 24,910 species in 2003 (Chase *et al.*) with many new species added each year and the orchids may well retain the edge. Chapter 11 states that the Compositae have the highest accepted number of species and suggests that there may be as many as 30,000 species, so the race is clearly on.

Overall, a superb contribution to the literature and a worthy addition to any botanist's library.

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Lichens Volume 5

Graham Bell

Botanist, State Herbarium of South Australia

Flora of Australia Volume 57. Lichens 5.

Published 2009 by CSIRO Publishing

Collingwood Victoria / Australian

Biological Resources Study (ABRS)

Canberra. 708 pages, 176 × 250 mm.

Hardback - ISBN: 9780643096646

- AU \$180.00. Paperback - ISBN:

9780643096653 - AU \$140.00.

In reality, most things have probably been said about *Flora of Australia* volumes and their style and format over nearly 30 years of production, but there are obviously particular notes about this volume and its content.

As stated in the Introduction, this volume treats 654 taxa (species and infra-specific) across 78 genera and 21 families. This brings the number of lichen taxa now covered by *Flora of Australia* to 1822, spread across 5 published volumes. We are advised in the Introduction of changed policy within ABRS to allow more flexible volume arrangement and facilitate more timely and efficient publication. This is good to hear, although bound to cause some inconsistencies and minor issues, some of which may be apparent in this volume. It seems there will now be up to 10 smaller volumes, rather than the initially-planned 6. Clearly this is an evolving plan, dependent upon treatments becoming available, but may well result in considerable lack of cohesion as to volume content, unless fuller explanations are provided.

Looking through the authorship of groups within this volume brings clearly into focus a major issue with current Australian taxonomic research – our seemingly growing reliance upon such research being produced by honorary or short-

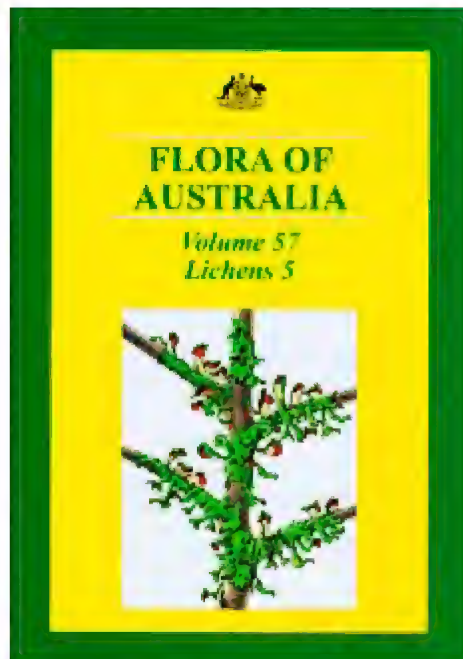
term contracted workers. A very substantial part of this volume has been contributed by 2 retired Australian professionals, Jack Elix and Alan Archer, with contributions from Simone Louwhoff (employed on specific grant funding) and 3 overseas experts. Smaller contributions from the Editor and an overworked Australian Herbarium Head round out the volume.

Much of this volume deals with genera or families whose range is confined to eastern or warm /

tropical areas, but it is good to see treatments of some more widespread and difficult genera such as *Diploschistes* and *Buellia*, where recent literature has sometimes been diffuse and difficult to access or assimilate. It is most pleasing to see some extremely fine detailed treatments produced for groups which are clearly difficult and much more complex and diverse than perhaps traditionally realised.

The overall presentation and format of this volume is much the same as for previous *Flora* volumes, with several pages of colour photographs, but a rather

higher number of black and white photographs, and a smaller proportion of drawings. Of particular note are the many superbly detailed micrographs by Armin Mangold in the treatment of Thelotremaaceae. Unfortunately, reproduction of some photographs seems less than ideal e.g. figures 1A, 1 and 3C – it is unclear to me whether this is a printing issue or certain coloured photographs reproducing poorly in monochrome. There may also be some discrepancy of citation of photographs – figure 4A does not seem to match its erroneously-cited counterpart in *Australasian Lichenology* 59 (“9” does not match either a page or figure number).



Especially given the comments above, relating to editorial policy changes, an expanded introduction with further editorial commentary could have clarified some apparently unexplained aspects of coverage within the treated groups. We are advised in the Introduction that “Complete or partial accounts of 21 families are provided...”, but no further explanation seems to be provided for this partiality or its presumed future remedy. For example, three additional untreated genera of Arthoniaceae are said to be known from Australia (p. 1) and added to the generic key, but no explanation is offered for their further absence. There is a slightly clearer note of explanation for the similar case in Stereocaulaceae (p. 60), but again no comment seems offered in Physciaceae (p. 494) on why only 3 genera are treated from 25 distinguished in the key. Perhaps a small footnote or heading to the key in each such case would be clearer and less frustrating.

Mostly the keys within treatments appear clearly presented and potentially workable, generally using morphological characters where possible and rarely using solely chemical characters, as has been the case with some past lichen treatments. Whilst academically correct, such characters are not generally practical for assessment by non-specialists when not accompanied by other supporting characters.

Species descriptions are more variable in content and length than I would expect by *Flora of Australia* standards: for example species descriptions are extremely long in Thelotremaaceae compared

with almost minimal examples in Celotheliaceae.

Perhaps venturing into debatable editorial policies (but maybe such things should be debated), there would seem to be issues relating to an upgraded version of *Ramboldia* appearing in addition to that already published in volume 56A. Whilst at least the reasoning is clearly explained, i.e. recent molecular information having resulted in the inclusion of extra species formerly in *Pyrrhospora*, this seems destined to cause some confusion. It also makes one wonder just how many changes and updates can be justified as a series proceeds, given the current highly fluid state of mycological taxonomy. Will the whole flora ever get published if we are to “go back over old ground” in this way?

Whilst looking to find species recorded for this State, it is sad to see how few collectors of specimens appear to be complying with the standard ethical practice (and indeed regulations of most collecting permits) to deposit specimens in the herbarium of the State where collected. How is local knowledge to be encouraged when no reference material is locally available (not to mention the legalities...)?

Aside from any comments which may be perceived as negative (although intended as constructive), the appearance of another volume in this series is clearly a matter for celebration, especially in the currently unfavourable economic climate, and the valuable and excellent treatments presented reflect much credit on all contributors.

Publication notices

Burbidge Lecture

Steve Hopper's 2008 Burbidge Medal presentation has recently been published:

Hopper, S.D. (2009). OCBIL theory: towards an integrated understanding of the evolution, ecology and conservation of biodiversity on old, climatically buffered, infertile landscapes. *Plant and Soil* 322, 49–86.

Number of Living Species

The Australian Biological Resources Survey has just released an updated edition of their publication *Number of living species in Australia and the World*.

You can download a copy of the report from <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/index.html>.

Minister Garrett's press release is available at <http://www.environment.gov.au/minister/garrett/2009/mr20090929.html>

The report notes that the science of species discovery is alive and well - in the past three years in Australia, we've discovered 48 reptiles, eight frogs, eight mammals, 1,184 flowering plants and 904 spiders, mites and scorpions.

Gerry Maynes

Biodiversity & Climate Change

Australia's Biodiversity and Climate Change. Climate Change Expert Advisory Group: Will Steffen, Andrew Burbidge, Lesley Hughes, Roger Kitching, David Lindenmayer, Warren Musgrave, Mark Stafford Smith and Patricia Werner. Published by the Department of Climate Change. 2009. ISBN: 978-1-921298-54-7.

An assessment of the vulnerability of Australia's biodiversity to climate change was commissioned by the Australian Government to help increase our understanding of how to help Australia's rich biodiversity adapt to climate change.

The assessment finds that Australia's biodiversity is at risk from even moderate climate change and already under stress, for example from habitat degradation, changed fire regimes and invasive species.

Climate change is likely to exacerbate these existing stressors and add additional stresses such as through declining water availability.

Australia is one of 17 megadiverse countries – a group of countries that harbour more than 70% of the Earth's species and are therefore considered extremely biodiverse.

Australia has many species that are unique to Australia and vulnerable to climate change.

About 85% of Australia's terrestrial mammals, 91% of flowering plants, and 90% of reptiles and frogs are found nowhere else in the world. More than 50% of the world's marsupial species occur only in Australia.

Rates of extinction of species are likely to increase as the global average temperature rises by just 1.0 or 1.5°C above pre-industrial levels, and likely to accelerate sharply as temperature rises beyond 2°C.

The Assessment was undertaken by an independent group of experts, led by Professor Will Steffen, for the Natural Resource Management Ministerial Council.

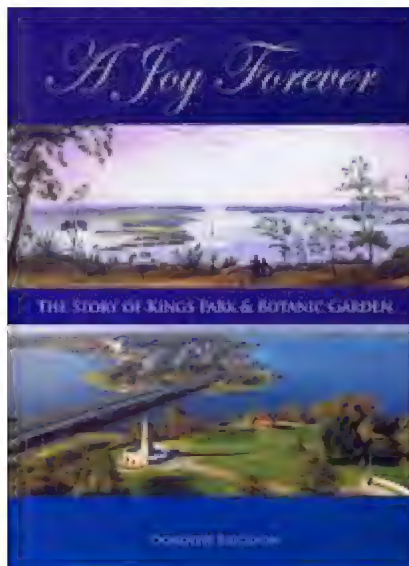
A summary of the report for policy makers is on-line as a pdf at low resolution. The main report cannot be printed because it is to be brought out as

a book by CSIRO Publishing due in December.

<http://www.climatechange.gov.au/en/publications/biodiversity/biodiversity-climatechange.aspx> [accessed 6 Nov. 2009]

History of Kings Park

A joy forever. The story of Kings Park & Botanic Garden. Dorothy Erickson. 2009. Published by the Botanic Gardens & Parks Authority, West Perth WA. 360 pages, 170 × 240 mm. Paperback. ISBN: 9781876479152. AU \$49.95



Provides a well illustrated history of Kings Park & Botanic Garden, Perth, written by Dr Dorothy Erickson, daughter of the late Dr Rica Erickson.

Microsoft seeks patent

Elizabeth Pennisi (7 August 2009). Systematics researchers want to fend off patents. *Science* 325(5941): 664. DOI: 10.1126/science.325_664

This article draws attention to a patent application by Microsoft (now 2 years old), claiming invention rights over the comparative technique used in calculating phylogenetic relationships. This technique has been in widespread use in biology for many years and most people think there is little chance of the patent being awarded, however it is a worry that Microsoft thought it was worth trying for at all, and which scientists can afford a legal team to match that of Microsoft?

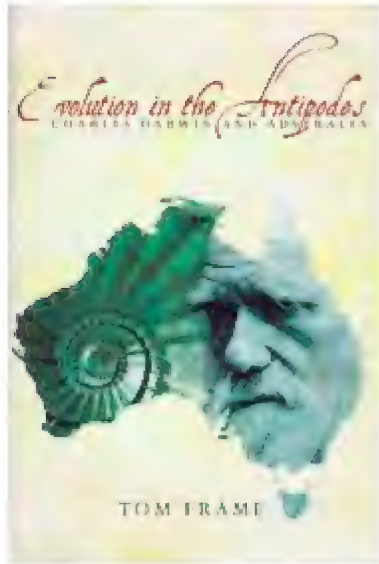
See: <http://www.sciencemag.org/cgi/content/summary/325/5941/664>

Some comment at: http://scienceblips.dailyradar.com/story/microsoft_tries_to_patent_the_comparative_method/

Australia & the Year of Darwin

Evolution in the Antipodes: Charles Darwin and Australia. Tom Frame.

2009. University of New South Wales Press, Sydney. 307 pages, 155 × 235 mm. Paperback. ISBN: 9781921410765. AU \$39.95.



Tom Frame reviews the influence of Australia on Darwin, and then follows the complex web of Darwin's influence on Australian society, from science to education and religion.

Barcoding region for land plants agreed

After a long-running debate (see Chase & Fay 2009), consensus on the most useful DNA barcoding regions for plants have been agreed on by the CBOL Plant Working Group (2009). An introduction to the potential applications is provided by Ausubel (2009) and an interesting example of how these barcodes may be used for wholesale screening of plants across a landscape is given by Kress *et al.* (2009). While not as useful for defining species-limits as *COI* for animal DNA barcoding, the combination of two plastid DNA regions, *rbcL* and *matK*, were considered to provide the best starting point for phylogenetic

placement of unknown samples, discriminating between species 61% and 66% of the time respectively. This combination discriminated species for 72% of sampled taxa, and genera for 100% of sampled taxa. The authors recommend these two regions as the starting point for all future sequencing projects to allow for universal phylogenetic comparisons.

It is interesting to note that some of the authors also considered patenting this! See: <http://www.pnas.org/content/106/31/12794>

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- Kress, W.J., Erickson, D.L., Jones, F.A., Swenson, N.G., Perez, R., Sanjurjo, O., and Bermingham, E. 2009. Plant DNA barcodes and a community phylogeny of a tropical forest dynamics plot in Panama. *Proceedings of the National Academy of Sciences of the United States of America* 106: 18621–18626. doi: 10.1073/pnas.0909820106.

Global seagrass decline

Michelle Waycott and an international team have documented the global rate of seagrass meadow decline with somewhat alarming results. The actual area of documented decline has been 29% over the last 127 years! Perhaps of even greater concern is the current rate of decline, around 7% per year. Clearly the productivity of our near-shore environments is in great need of new conservation efforts.

MacGregor Campbell has written a summary in New Scientist: <http://www.newscientist.com/article/dn17412-meadows-of-the-sea-in-shocking-decline.html>

Reference

Waycott, M., Duarte, C.M., Carruthers, T.J.B., Orth, R.J., Dennison, W.C., Olyarnik, S., Calladine, A., Fourqurean, J.W., Heck Jr, K.L., Hughes, A.R., Kendrick, G.A., Kenworthy, W.J., Short, F.T., and Williams, S.L. 2009. Accelerating loss of seagrasses across the globe threatens coastal ecosystems. *Proceedings of the National Academy of Sciences of the United States of America* 106(30): 12377–12381. doi: 10.1073/pnas.0905620106.

rather interesting study on the role of plant sex in resistance to herbivory. Studying sexual and functionally asexual species of Onagraceae, they concluded that species that reproduced sexually were more resistant to generalist herbivores than their asexual counterparts. They found that the same did not hold for specialist herbivores which may have co-evolved with their host.

See: http://www.eurekalert.org/pub_releases/2009-07/ncsu-sii071009.php

Johnson, M.T.J., Smith, S.D., and Rausher, M.D. (2009). Plant sex and the evolution of plant defenses against herbivores. *Proceedings of the National Academy of Sciences of the United States of America* 106(43): 18079–18084. doi:10.1073/pnas.0904695106.

Plant sex & herbivory

Marc Johnson & colleagues have published a

Notice

New editors for CSIRO journals

CSIRO Publishing have recently announced that Dr Michael Bayly has been appointed as the new Editor-in-chief for *Australian Systematic Botany* and Professor Bob Hill has been appointed as

the new Editor-in-chief for *Australian Journal of Botany*. We congratulate both editors on their appointments and wish them all the best for their new roles.

Food for thought

Top 10 species names for 2009

While neither are from Australia, two plant species have been listed in the top ten species names for 2009. For those who like decaf, a naturally caffeine-free *Coffea* species has recently been described from Cameroon. The other is a new genus and species of Palm, *Tahnia spectabilis*, which flowers once, then dies, from Madagascar.

Other top-10 species include an Australian fossil fish, a pygmy seahorse the size of a pea, the world's smallest snake (104 mm long), and an extremophile bacteria which grows as a contaminant in hairspray!

See <http://species.asu.edu/Top10> for more details and photographs of these curious species.

Digital images to replace specimens?

A paper suggesting standards for photographing live plants has recently been published by Baskauf

& Kirchoff (2008).

It is interesting that they seem to advocate that the digital images take the place of specimens and make no reference to the collection of voucher specimens which I would have thought should have been a non-negotiable part of any standard.

It might be an interesting technique to be adopted for those studying rare and threatened species such as orchids where the taking of a voucher may be more difficult but I think it probably comes down to having to know exactly what features are diagnostic and hoping that these don't change with more knowledge of the group in the future.

And you can't get DNA out of a photograph!

Baskauf, S.J., and Kirchoff, B.K. (2008). Digital plant images as specimens: towards standards for photographing living plants. *Vulpia* 7(1): 16–30. (Available at: http://www.cals.ncsu.edu/plantbiology/ncsc/vulpia/pdf/Baskauf_&_Kirchoff_Digital_Plant_Images.pdf)

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ASBS Publications

History of Systematic Botany in Australia

Edited by P.S. Short. A4, case bound, 326 pp. ASBS, 1990. \$10; plus \$10 postage & packing.

For all those people interested in the 1988 ASBS symposium in Melbourne, here are the proceedings. It is a well presented volume, containing 36 papers on: the botanical exploration of our region; the role of horticulturists, collectors and artists in the early documentation of the flora; the renowned (Mueller, Cunningham), and those whose contribution is sometimes overlooked (Buchanan, Wilhelmi).

Only a few copies left! – available only from the treasurer.

Systematic Status of Large Flowering Plant Genera

Austral.Syst.Bot.Soc.Newslett. 53, edited by Helen Hewson. 1987. \$5 + \$1.75 postage.

This *Newsletter* issue includes the reports from the February 1986 Boden Conference on the “Systematic Status of Large Flowering Plant Genera”. The reports cover: the genus concept; the role of cladistics in generic delimitation; geographic range and the genus concepts; the value of chemical characters, pollination syndromes, and breeding systems as generic determinants; and generic concepts in the Asteraceae, Chenopodiaceae, Epacridaceae, *Cassia*, *Acacia* and *Eucalyptus*.

Australian Systematic Botany Society Newsletter

Back issues of the *Newsletter* are available from Number 27 (May 1981) onwards, excluding Numbers 29, 31, 60–62, 66, 84, 89, 90, 99, 100 and 103. Here is the chance to complete your set. Cover prices are \$3.50 (Numbers 27–59, excluding Number 53) and \$5.00 (Number 53 and 60 onwards). Postage \$1.10 per issue, apart from \$1.75 for the Large Genera issue (Number 53).

Evolution of the Flora and Fauna of Arid Australia

Edited by W.R. Barker & P.J.M. Greenslade. Peacock Publications, ASBS & ANZAAS, 1982. \$20 + \$8.50 postage.

This collection of more than 40 papers will interest all people concerned with Australia’s dry inland, or the evolutionary history of its flora and fauna. It is of value to those studying both arid lands and evolution in general. Six sections cover: ecological and historical background; ecological and reproductive adaptations in plants; vertebrate animals; invertebrate animals; individual plant groups; and concluding remarks.

Also available from Peacock Publications, 38 Sydenham Road, Norwood, SA 5069, Australia. To obtain this discounted price, post a photocopy of this page with remittance.

Ecology of the Southern Conifers (Now out of print)

Edited by Neal Enright and Robert Hill. ASBS members: \$60 plus \$12 p. & p. non-members \$79.95. Proceedings of a symposium at the ASBS conference in Hobart in 1993. Twenty-eight scholars from across the hemisphere examine the history and ecology of the southern conifers, and emphasise their importance in understanding the evolution and ecological dynamics of southern vegetation.

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AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

The Society

The Australian Systematic Botany Society is an incorporated association of over 300 people with professional or amateur interest in botany. The aim of the Society is to promote the study of plant systematics.

Membership

Membership is open to all those interested in plant systematics. Membership entitles the member to attend general meetings and chapter meetings, and to receive the *Newsletter*. Any person may apply for membership by filling in a “*Membership Application*” form, available on the Society website, and forwarding it, with the appropriate subscription, to the Treasurer. Subscriptions become due on January 1 each year.

The ASBS *annual membership subscription* is AU\$45; full-time students \$25. Payment may be by credit card or by cheques made out to *Australian Systematic Botany Society Inc.*, and remitted to the Treasurer. All changes of address should be sent directly to the Treasurer as well.

The Newsletter

The *Newsletter* is sent quarterly to members and appears simultaneously on the ASBS Website. It keeps members informed of Society events and news, and provides a vehicle for debate and discussion. In addition, original articles, notes and letters (not exceeding ten published pages in length) will be considered. *Citation:* abbreviate as *Austral. Syst. Bot. Soc. Newslett.*

Contributions

Send copy to Russell Barrett and Peter Jobson and book reviews to Gael Campbell-Young at the addresses given below. They *preferably* should be submitted as: (1) an MS-DOS file in the form of a text file (.txt extension), (2) an MS-Word.doc file, (3) a Rich-text-format or .rtf file in an email message or attachment or on an MS-DOS disk or CD-ROM. *Non-preferred media* such as handwritten or typescripts by letter or fax are acceptable, but may cause delay in publication in view of the extra workload involved.

Formatting of submitted copy. Please use Word in formatting indents, bullets, etc. in paragraphs and for tables. Do not format primitively with tabs, which change with the Normal style sheet. If embedding tables or references or other Objects from other software (Excel, bibliographic software, etc.) ensure that these are converted to Word tables or paragraphs. Letters in abbreviations of Australian States (SA, WA etc., but Vic.) and organisations (e.g. ASBS, ABRS) should not be separated by full-stops, but initials should be (e.g. W.R. Smith, not WR Smith).

Images: their inclusion may depend on space being available. Improve scanned resolution if printing your image is pixellated at a width of at least 7 cm (up to a 15 cm full page). Contact the Editors for further clarification.

The *deadline* for contributions is the last day of February, May, August and November. All items incorporated in the *Newsletter* will be duly acknowledged. Any unsigned articles are attributable to the Editors.

Authors alone are responsible for the views expressed, and statements made by the authors do not necessarily represent the views of the *Australian Systematic Botany Society Inc. Newsletter* items should not be reproduced without the permission of the author of the material.

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A 20% discount applies for second and subsequent entries of the same advertisement. Advertisements from ASBS members are usually exempt from fees but not the insertion costs in the case of a flyer. Contact the *Newsletter* Editors for further information.

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